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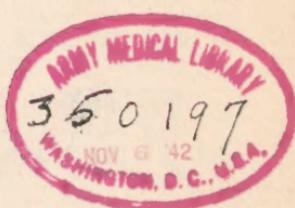
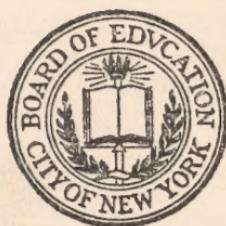


CARDIAC CLASSES AND THE  
CARE OF CARDIAC CHILDREN



THE COMMITTEE FOR THE STUDY OF  
THE CARE AND EDUCATION  
OF  
PHYSICALLY HANDICAPPED CHILDREN  
IN THE PUBLIC SCHOOLS  
OF THE  
CITY OF NEW YORK

T,  
*Report of the Sub-Committee on  
CARDIAC CLASSES AND THE CARE OF  
CARDIAC CHILDREN*



THE BOARD OF EDUCATION OF  
THE CITY OF NEW YORK

[1941]

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REPORTS  
OF  
THE COMMITTEE FOR THE STUDY OF THE  
CARE AND EDUCATION OF PHYSICALLY  
HANDICAPPED CHILDREN

GENERAL REPORT

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## TABLE OF CONTENTS

I.	Preface	18
II.	Introduction	19
III.	Historical Background	23
IV.	Description of Rheumatic Fever	31
V.	Plan of Investigation	43
VI.	Summary of Finding and Observations by Physicians	53
VII.	Summary of Observations by Educators	81
VIII.	Summary and Recommendations	91



## Preface

THIS statement of findings and conclusions of the committee studying the problems of cardiac children is one section of the report of the Committee for the Study of the Care and Education of Physically Handicapped Children in the Public Schools of the City of New York. The Committee was appointed by the Board of Education in 1936. All of its inquiries, which extended over a period of more than three years, have been made by sub-committees. No appropriation was given the Committee for the employment of technical and clerical personnel. The studies were possible only because of the voluntary assistance of physicians, educators and other specialists who have given much time and consideration to the problems presented by handicapped children, the provisions now made for them and the ways in which the existing program can be improved. Clerical and statistical help was provided by the Works Projects Administration and numerous philanthropic organizations.

In addition to the persons listed in this report the Committee is indebted to the Superintendent of Schools, Dr. Harold G. Campbell, to the teachers and schools officials and others who have helped in the survey and to Mr. Frank Kiernan, Director of the New York Tuberculosis and Health Association. The Director acknowledges his personal indebtedness to Dr. Lyman C. Duryea and to Dr. Robert T. Rock, Jr. Finally he is indebted to the Public Health Relations Committee of the New York Academy of Medicine which has critically reviewed this and the other reports of the Committee.

HAROLD W. McCORMICK,  
*Director.*



## II

### Introduction

ALTHOUGH the problem of cardiac children in the public schools with which this report deals, is a large one and has many ramifications it must be remembered that it encompasses only a single phase of the larger problem of heart disease in children. Rheumatic fever and rheumatic heart disease represent a public health problem of the greatest magnitude which must be attacked from many angles. The report of the rheumatic fever commission of London, England\*, illustrates this very clearly. Hospital facilities for those ill with active rheumatic fever; convalescent homes, sanatorial care and foster homes for those in the recovery phase of the disease; readjustment of the home life and economic factors for those returning to their old environment; adequate medical supervision for those in the inactive phase; health education and intensified research, and many other phases of the larger problem must be considered in relationship to the schools. It must be realized, then, that this report is in the nature of a partial presentation—a single chapter as it were—of the whole story of heart disease in children.

It follows, then, that whatever plan is finally evolved in the school system for handling these children it must be so made that it is closely coordinated with other features of the whole project. Closely fitting into any plan to care for the cardiac children in the schools must be the work of the New York Heart Association which through its various committees is able to see the problem in its entirety and to offer concrete suggestions on any phase of it. The New York Heart Association should therefore be consulted on the personnel of the Medical Advisory Committee that is recommended in this report.

\*“Treatment of Juvenile Rheumatism: The London County Council’s Rheumatism Scheme,” appearing in *Annals of Rheumatic Diseases*, July, 1939, London, England.

This report will indicate that with a redistribution of funds now available in the budget it will be possible more adequately to care for a larger number of cardiac children in the schools. We should like to point out, however, that proper care of the cardiac children in the schools cannot be done without sufficient funds. The ridiculously low salary of \$5.00 per clinic session for cardiologists as consultants in the Cardiac Classification Service leads to a rapid turnover in physicians and tends to wreck the program. It will be necessary to increase the number of school physicians and nurses. To what extent this must be done can only be determined when a *complete* register of all the cardiac children in the public schools is available. This report, therefore, in which many examples of inefficiency and waste are indicated in the present handling of the cardiac children in the public schools must not be taken as an excuse to reduce or to eliminate medical service to cardiac children.

ARTHUR C. DEGRAFF,  
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### III

## Historical Background

### INTRODUCTION

IN 1916 the newly formed Association for the Prevention and Relief of Heart Disease undertook, as one of its major objectives, a study of the problem of children suffering from cardiac diseases in the public schools of Greater New York. During the following year, the Association developed a research project which provided for an intensive study of the effects of segregation on a certain number of children in special classes, and the setting-up of a control group of children examined and permitted to continue attending regular schools in order to secure data on which to judge the comparative value of the two methods. A few months later, an experiment was put into operation in three public schools selected because they were conveniently located near the cardiac clinics of Mount Sinai, St. Luke's and Post-Graduate Hospitals. Later a fourth cardiac class was opened in connection with the cardiac clinic at Beth Israel Hospital.

This investigation was interrupted by the declaration of war by the United States in 1917. The project could not be continued as planned, but the original experimental classes continued and a few members of the Association carried on the work. Concurrently the Public Education Association organized a cardiac committee which gave evidence of the fact of civic interest in the cardiac problem. With the discontinuance of the activities of the Association for the Prevention and Relief of Heart Disease, the Public Education Association made a study to determine the number of children suffering from cardiac diseases and endeavored to maintain the interest of the Board of Education in the problem. This study revealed that there were 791 children in two districts comprised of 31 schools. These findings prompted the

## HISTORICAL BACKGROUND

Public Education Association to request the Board of Education to appropriate \$25,000 for the study of the cardiac problem. In 1920 a grant of \$24,063.43 was appropriated and eleven classes were established. In this same year the research project was resumed by a sub-committee of the Association for the Prevention and Relief of Heart Diseases of which Dr. Robert H. Halsey was Chairman.

After three years of close observation of the children in these classes, the Chairman of this Committee, Dr. Robert H. Halsey, reported to the Board of Education on July 19, 1923, that information had not been found to be conclusive for a final report upon the kind and amount of school work which children with cardiac diseases can do, nor upon the measures available to control, abate, and prevent the damage of the heart in children of school age as well as those of pre-school age. It was recommended that the segregated classes be abolished, as they were considered unnecessary for 92% of the children. The report further pointed out that under the existing method of segregating cardiac children the cost of caring for each child each school year made it impossible to care for more than 500 children. It was observed that more accurate results could be obtained by examining these children in cardiac clinics than by the ordinary school examination. This result was substantiated by the fact that with the same group of children, the clinical examinations established an incidence of 0.7% of actual organic cases, while the Bureau of Hygiene had established an incidence of 1.39% based on the findings of school physicians.

It was noted that the Board of Education had appropriated \$75,000 and the Public Education Association had supplied funds in four years approximating \$30,000, yet this aggregate sum would not have been adequate for the

## HISTORICAL BACKGROUND

study if it had not been supplemented by assistance from various other welfare agencies, such as the Children's Aid Association, School Children's Welfare League, physicians of cardiac clinics, nurses and social workers.

In this same year, the Assistant Director in charge of the Physically Handicapped, in a report to the Superintendent of Schools advocated the extension of segregation for cardiac children, and submitted data showing weight gains and similar improvements resulting from segregation of cardiac children in special classes.

On October 15, 1923, the School Committee of the Association for the Prevention and Relief of Heart Disease submitted a second report to the Superintendent of Schools, in which it commented on the report of the Assistant Director, and reiterated its previous recommendations as to the care of cardiac children in the schools. It found that the report of the Assistant Director had not presented any new evidence and stated that her data on the progress of cardiac children due to better health conditions showed what could be done by providing food, but "revealed nothing as to the betterment of a damaged heart."

The conclusions arrived at by the School Committee of the Association for the Prevention and Relief of Heart Disease in these two reports in the year 1923 advised changes in the system of caring for cardiac children in the public schools at that time. However, the segregated classes were continued and were endorsed by the Public Education Association.

In January, 1926, a sub-committee of which Dr. William St. Lawrence was chairman reported regarding the special classes and presented certain recommendations. It provided for a districting of the city by the Department of Health with clinics in each district to act as con-

## HISTORICAL BACKGROUND

sultation and treatment clinics, with a physician in charge and nursing personnel to examine all school children. The plan also provided for the permanent organization of the School Committee to act "as a unifying influence throughout the city and serve as a clearing house for suggestions and criticisms from the district chiefs and to cooperate with representatives from the Board of Health and the Board of Education." The Committee, in formulating the report in consideration of its experience of two and a half years, reiterated the opinion that the position taken by the Association in the past was a sound one and stated that the cardiac segregated classes should be abolished and children classified as Potential Cardiacs, or Class I or IIA, should be transferred to the regular classes; that permission should be given for all children in Class IIA to be excused from fire-drill and to arrive and depart from school earlier than the rest of the children; that a division of cardiac control should be created in the Bureau of Child Hygiene of the Department of Health; and that a plan should be formulated for a complete and accurate register of all cardiac children. A conclusion arrived at through this study was that the expansion of the segregated classes by the Board of Education is not warranted.

In 1926, the Superintendent of Schools requested the Committee on Public Health Relations of the New York Academy of Medicine to make an inquiry and to submit a report on the segregation of cardiac school children. Their conclusions reaffirmed the several reports of the School Committee of the New York Heart Association (successor to the Association for the Prevention and Relief of Heart Disease). The report emphasized the fact that members of the Board of Education "evidently do not appreciate that segregated classes *per se* are not the aim, but afford a method of medical control and supervision" and the fact that strict medical supervision was

## HISTORICAL BACKGROUND

needed most, rather than general medical advice. The Committee of the New York Academy of Medicine advocated the abolishment of the existing cardiac classes. However, apparently at this time, the status of the segregated classes for cardiac children was such in the opinion of the Board of Education that their continuance was warranted.

A request from the Commissioner of Health, Dr. Shirley Wynne, in 1931, in regard to building a separate school for cardiac children attending Junior High School reopened the problem and the limited study which had been planned was made.

In May 1934, the School Committee of the New York Heart Association presented a report in three sections; namely, the medical requirements, the present status and the recommendations for the cardiac children in the New York Public School system.

The medical requirements as formulated were based on the knowledge of rheumatic heart disease held at that time. The need for medical personnel to detect and to diagnose correctly cardiac diseases in school children was noted as of paramount importance. Other important factors to be noted in the medical supervision were listed as: detection of rheumatic activity, provision of the best possible hygienic facilities and recording of medical data. It was felt that adequate medical requirements should include transportation and special privileges for the cardiac child in school, as well as educational opportunities for the cardiac child forced to remain away from school for a considerable length of time.

The Committee was handicapped in determining the status of the cardiac child in school because official records were not made available to them. In a summary

## HISTORICAL BACKGROUND

of the status, it was noted that the estimate of the incidence of cardiac diseases made by the Board of Education was unreliable as a guide to the magnitude of the cardiac school problem; that the fifty-four segregated cardiac classes in New York City Schools provided transitory accommodations for about one thousand children; that the method of admitting children to these classes was faulty; and that the medical and nursing supervision in these cardiac classes was not uniform and not adequate. In conclusion the report stated:

"In the light of the analysis embodied in this report and in view of our present understanding of the nature and clinical course of rheumatic fever the 'segregated cardiac classes' in the public school system have failed to provide satisfactory medical supervision for the cardiac child at school. Because of this, the School Committee cannot endorse the 'segregated cardiac classes' as constituted and conducted at present and cannot recommend their further extension to the Junior High Schools of New York City."

The Committee believed that it was expedient for the City to provide more adequate medical care for the rheumatic cardiac child at school and therefore recommended that the Department of Education affiliate with several clinics recommended by the New York Heart Association wherein the children who are seeking admission to the special cardiac classes might be examined and classified; that physicians be appointed in the Department of Health, who could visit the special classes and arrange for periodic reexamination and reclassification; that additional nurses be provided for the cardiac classes; that school teachers assigned to cardiac classes have special training; that home teachers be provided for all Class IIB cardiacs; and that the Board of Education provide physical facilities for the care of these children.

## HISTORICAL BACKGROUND

From research made in compiling this historical material, it is evident that no information is available on the actual increase of cardiac classes in chronological order, nor on the basis for the increase which has taken place since the first three segregated cardiac classes were organized in 1917 as part of a research project. It is apparent that these classes have increased without sufficient study of the medical requirements, evaluation of medical services rendered, or consideration of alternative methods.



## IV

# Description of Rheumatic Fever

### INTRODUCTION

THE problem of heart disease in children is primarily that of rheumatic fever and rheumatic heart disease. Ninety-five percent of all heart diseases in childhood are the direct result of rheumatic fever. A greater difficulty is presented in this disease than in the anterior poliomyelitis where after the disease has produced its paralytic effects no further damage is probable. The problem in rheumatic heart disease more nearly resembles that of tuberculosis where, too, we must be constantly on guard for a reactivation of the infection.

Therefore, a brief review of what is known of rheumatic fever and rheumatic heart disease will be presented. Rheumatic fever has no distinctive clinical pattern. It may simulate several of the acute or chronic diseases of childhood. It is treacherous because failing to follow a typical pattern, it may confuse the physician. Also it is dangerous because its onset is at times so insidious that it fails to arouse timely suspicion on the part of its victim or his family, who thus tend to delay seeking medical aid until the disease has made serious headway and has produced irreparable damage to the heart and circulation.

### *Acute Aspects*

The more readily distinguishable and clear-cut features of the disease appear, as would be expected, during its acute flares. These are its more striking and dramatic episodes, in the course of which the patient is acutely ill and may be afflicted with serious symptoms such as high fever, migrating joint and muscle pains, rapid heart action, respiratory embarrassment, drowsiness, weakness, profuse perspiration and prostration. Such acute epi-

## DESCRIPTION OF RHEUMATIC FEVER

sodes may differ from patient to patient in that one or another of the acute features mentioned may dominate the clinical picture.

In one, for instance, the joint involvement may be very severe and disabling. Such joints are generally swollen, visibly red, and exquisitely tender to the touch. This severe "polyarthritic" form is not the rule in children. In others the cardiac inflammation may be so extensive and respiration become so labored and troublesome that life seems in the balance. Actually it is because rapid failure of the circulation is a serious threat in this type of case. In still others, symptoms of severe toxemia, such as headaches, drowsiness and a tendency to prostration dominate the acute episode.

Such acute phases of the disease may last from three to six weeks and usually leave the patient with marked weakness, loss of weight and a severe secondary anemia. These are troublesome consequences of the disease in that they tend further to embarrass the damaged heart which, in turn, being unable to carry on an efficient circulation of the blood, will impair the function of other important organs such as the lungs, liver and the kidneys. Because of this, the patient's convalescent period may become protracted so that it may take several months before he will begin to appear even tolerably well.

### *Recurrent Episodes*

Furthermore, patients convalescing from the disease always incur the hazard of a re-lighting of the pathological process. Recurrent acute episodes are common and they may appear in cycles only a few months apart. Generally, such recurrent cycles are not quite as close.

## DESCRIPTION OF RHEUMATIC FEVER

More often they are ten or twelve months apart. Some of these recurrent acute episodes being after-flares, as it were, may not seem as acute and may actually be of shorter duration than the initial attack. There is, however, no strict rule to this relationship. There are cases in which the initial attack is quite mild, while the recurrent flares are successively more and more severe, leading precipitously to a rapid and final break-down.

### *Smoldering Phases*

As has been pointed out, not uncommonly rheumatic fever may have an insidious onset, run its course and produce extensive cardiac damage before it is recognized. This form of the disease follows a smoldering course without any acute episodes or only with mild or relatively inconspicuous flares which generally escape attention. Minor symptoms may appear from time to time. The disease may be manifested only by low grade fever, mild fleeting muscle or joint aches and, what of course the child's parents will not detect, a quickening of the heart action. Though these manifestations be mild, the disease may nevertheless run a destructive course with progressive structural damage to the heart.

As would appear from the foregoing, these smoldering forms of the disease, running a course which is chronic or sub-acute, lead to considerable confusion both in diagnosis and prognosis. By virtue of their smoldering and seemingly innocuous course, they are prone to give the patient, his family and at times even the physician in charge, an utterly unwarranted sense of security. Because of the diversity of the minor symptoms which the disease may present, it tends to confuse diagnosis in that it may resemble any one of a large group of the milder diseases

## DESCRIPTION OF RHEUMATIC FEVER

of childhood. In some, the disease is entirely overlooked and the behavior of the patient may be ascribed to a mere personality defect.

A child, for example, harboring this smoldering form of rheumatic fever may appear fretful, indisposed, may have poor appetite and perhaps a fitful sleep. "Just a bad child," an "anti-social child," a "finicky, cranky child" or other such appellations may be heaped upon him. As one can readily imagine, parents or guardians may even deem it necessary to resort to corporal punishment, in order to "train him in discipline." This is especially true in the case of rheumatic children suffering from mild, undetected chorea, a disease often characterized by a temporary personality defect.

If a rheumatic child, after months of such a smoldering illness, and particularly because of poor appetite, should lose considerable weight, he may be taken to the physician as a problem in nutrition. Complete examination usually reveals a murmur and the heart disease will be recognized. Nevertheless, such a child may still be treated for his presenting symptom, the malnutrition, and the fact that he is a victim of smoldering rheumatic fever may be entirely overlooked.

There are those in whom, as a result of rheumatic activity, profuse nose bleeds are the only troublesome symptoms. This, in fact, may be the first manifestation of the disease. Such patients often find their way to the nose and throat specialist and undergo treatment for a presumably local disease for months before the disease is recognized.

One of the more common manifestations of smoldering rheumatic fever is the fleeting muscle or joint pain. Children having this symptom may develop a sudden limp and the advice of an orthopedist may be sought before

## DESCRIPTION OF RHEUMATIC FEVER

a thorough medical study is instituted. In this connection it should be emphasized that, fortunately, the so-called "growing pain" in children is taken more seriously to-day; and parents, in larger cities at any rate, seek medical advice frequently because of this symptom alone.

Certain skin rashes may be the only evidences of rheumatic activity. Not infrequently rheumatic children are taken to a dermatologist or to a skin clinic where on the basis of the skin lesions alone the diagnosis of rheumatic fever is made. Extensive literature has appeared in recent years to guide us in the recognition of the skin manifestation of this disease.

There are children in whom without any outstanding complaint and without any conspicuous fever severe cardiac inflammation may nevertheless be going on and failure of the circulation may be actually impending. Their only symptoms may be a protracted cough and some shortness of breath. Such patients may be subjected to a variety of cough mixtures for weeks or even months before the true nature of the disease is finally disclosed.

Perhaps the most dramatic manifestation or, in other words, the symptom which leads to the most serious consequences in smoldering rheumatic fever is the "belly-ache." Abdominal pain may be the only expression of an acutely inflamed heart, especially pericarditis. On the other hand, it may actually be the expression of an acute abdominal rheumatic inflammation. This symptom, if accompanied by fever and by an increase in the white blood cells, completes a diagnostic triad which has all the earmarks of an acute appendicitis. Surgical operations have been performed and are still being done on patients with this urgent symptom-complex. In the absence of other symptoms of active

## DESCRIPTION OF RHEUMATIC FEVER

rheumatism the hazard of overlooking an acute appendicitis justifies surgical intervention in many of these cases.

The above examples of the diverse symptomatology of rheumatic fever might be multiplied. However, for the purpose for which they are here intended, they will serve adequately, it is hoped. The examples cited are amply illustrative of the utterly misleading clinical picture of this disease. Furthermore, they lend emphasis, it is believed, to what has been pointed out at the outset, namely, that rheumatic fever is an elusive and treacherous disease and that in its less acute forms or during the intervals between its stormy and more characteristic episodes it may simulate many of the common diseases of childhood.

### *Method of Approach and Clinical Picture Evolved*

Rheumatic fever has long been a problem of great concern to the medical profession. In years past, rheumatic fever meant joint inflammation and, conversely, joint pains meant rheumatism. Cardiac involvement was spoken of as a complication. It required many years of concerted effort to reveal the whole disease. This has been accomplished as a result of continuous care and uninterrupted observations on large groups of patients followed consecutively through hospitals, convalescent sanatoria, cardiac clinics, school classes and the home. As a result of this type of study, in which the New York Heart Association has taken a leading part, the true picture of rheumatic fever has finally been disclosed.

It has now become evident that rheumatic fever is a chronic protracted disease with intermittent acute episodes, an intricate symptomatology, diverse clinical

## DESCRIPTION OF RHEUMATIC FEVER

manifestations and a fairly unpredictable course. The pathological involvement and the inflammation which it produces is widespread. It may affect any part of the body. The cardiac inflammation stands out as its most dramatic manifestation largely because any structural injury to this organ, interfering with its physiological function, will ultimately be reflected in a disorder of function in other important organs of the body, whose physiological integrity naturally depends upon an adequate and well-balanced circulation.

### *Etiological Considerations*

Although as a result of intensive study for the past two decades we have been quite familiar with the natural history and the clinical manifestations of rheumatic fever in children, we are, as yet, seriously hampered by the lack of considerable important information. The etiology, the actual cause, of this disease is not as yet completely demonstrated although a large number of competent contributory causes are recognized.

An underlying allergic constitution to bacterial toxins has been suggested as a possible cause of the disease. No virus has been implicated. The etiological role of Group A, hemolytic streptococcal infections, has been stressed repeatedly for many years; and this concept is continually gaining ground. Those who urge this hypothesis base their views on the great frequency with which streptococcal infections induce acute rheumatic episodes, on the occurrence of certain immunological responses on the part of rheumatic fever patients to certain substances elaborated by these streptococci, and finally on the recent demonstration of the prophylactic influence of sulfanilamide in respect to upper respiratory hemolytic streptococcal infections and rheumatic fever. There is a strong

## DESCRIPTION OF RHEUMATIC FEVER

probability that the etiology of rheumatic fever has multiple components and it is not unreasonable to assume that the disease may prove to be the result of the foregoing suggested causes.

### *Prevalence and Incidence*

Although the actual mechanism of the pathogenesis has not been definitely established, we are aided considerably in the management of patients with rheumatic fever by data gathered in recent years with respect to certain factors in its distribution, its prevalence and its incidence. The disease, though present throughout the country in one form or another, is relatively more prevalent in the northeastern section of the United States and conversely it is encountered less and less commonly as we travel south and southwest. The numerical prevalence in different parts of the country has not been definitely estimated because the disease is not reportable and studies thus far have been confined to limited sections. Cities with large populations, especially eastern cities, have been most adequately investigated. In New York City, for example, it is estimated that children with rheumatic fever or those who have had it, as evidenced by residual cardiac damage, constitute approximately three-quarters of one percent of the school population.

As to the age incidence of first affections of rheumatic fever in children, some statistical studies have shown that, although seven years is perhaps the age of highest incidence, approximately twenty-five percent of certain groups studied have had their first attack of the disease as early as five years of age. It has been shown, furthermore, that recurrences, or acute flares of the disease, are very common and that they continue unabated up to the age of puberty. These observations are important in that they bring rheumatic fever into the foreground

## DESCRIPTION OF RHEUMATIC FEVER

as a disease of childhood which takes its toll in ill health during the public school age.

### *The Basic Problem at School Age*

The problem of these children resolves itself into various aspects; (1) That of the child with an active, acute infection, who should be in a hospital or sanatorium; (2) a subacute to chronic stage lasting several months, in which the child should be in a sanatorium, convalescent home or quiet in his own home; (3) a recovered or completely quiescent stage in which the heart may show no sign of damage but the child's general status be one in which there is liability to a recurrence of rheumatic fever if he contracts hemolytic streptococcal infections of the upper respiratory tract; (4) a completely quiescent state, but with varying degrees of permanent damage to the heart. Children in this stage not only may show symptoms of a damaged heart and require special consideration because of these symptoms; but they also are very liable to recurrences of the more acute phases of the disease, which are usually preceded or accompanied by hemolytic streptococcal infections; and during these recurrences additional cardiac damage probably will be inflicted. In general, it may be stated that the ultimate degree of heart involvement is more or less proportional to the number and severity of attacks of rheumatic fever the young patient has suffered. The public school should deal only with children in the completely quiescent or recovered phases of the disease; but actually there are attending school many children with low grade active rheumatic infection; hence there should be diagnostic machinery to detect these cases and to refer the children to the proper agencies for treatment. Moreover, the great tendency for children in phases 3 and 4 (above) to suffer relapses after certain acute respiratory infec-

## DESCRIPTION OF RHEUMATIC FEVER

tions indicates the desirability of having the same diagnostic machinery always available for studying these children whenever such acute respiratory infections appear.

### *Public Health Aspects*

Rheumatic fever presents also certain important public health aspects. Its geographic distribution, as has been mentioned, indicates that a large section of our population is subject to the disease. Aside from this, however, it must be pointed out that within this large geographic section there are areas of condensation, "nests," as it were, where the disease is particularly prevalent. These areas correspond to crowded sections of large cities, "waterfronts" and parts of cities designated as "slums." These happen to be areas inhabited by the underprivileged of our population. This curious relationship has long been recognized and emphasized by the English. It was they who designated rheumatic fever as a disease of "poverty, ignorance and filth."

There is some evidence, from meager information to be sure, which indicates that rheumatic fever is also a transmissible disease. It has been demonstrated as far back as some twenty years ago that there is a distinct familial tendency in this disease. It has been pointed out that in certain families rheumatic fever affects several members of the same family with as great a frequency as does tuberculosis.

Furthermore, there are authentic reports of minor epidemics of rheumatic fever. These reports are based upon observations in military barracks and schools where an unusually large number of cases were discovered at the same time among otherwise seemingly

## DESCRIPTION OF RHEUMATIC FEVER

healthy subjects; but in practically all of these epidemics the rheumatic fever was preceded by hemolytic streptococcal infections of the upper respiratory tract. The seasonal incidence of rheumatic fever, namely, its increase during the first winter and early spring months, may at times assume epidemic proportions.

### *Community Responsibility*

In the light of the manifold aspects enumerated in the foregoing, it would appear that rheumatic fever presents a community problem of considerable magnitude. Any serious endeavor to cope with a problem of so widespread a scourge as rheumatic fever clearly implies a major responsibility. In the aggregate it becomes a matter of providing adequate facilities for health supervision, education, vocational guidance and the rehabilitation from time to time of a child population, numbering in the thousands even in single communities. This responsibility must be met with the conscious realization of the facts that these children are victims of a chronic protracted disease and that they are afflicted with a damaged heart, during their most important, their formative years.

Nor is this quite sufficient. Attempts at adjustment must take into account certain environmental factors. The rheumatic cardiac child is soon entangled in problems that emanate from the home. In the course of years, families with rheumatic children undergo great hardship and not infrequently they bankrupt themselves in desperate efforts to save such children. Furthermore, the repeated acute flares of the disease to which these children are particularly vulnerable, bring with them a recurrent train of anxieties which, because of their cumulative effect, finally undermine the morale of the family and the patient. Anxiety neuroses soon color the

## DESCRIPTION OF RHEUMATIC FEVER

entire clinical picture so that the appraisal of symptoms as well as all planning intended to meet the actual needs of the child, educational or otherwise, becomes exceedingly difficult.

Clearly then, any community effort on behalf of our rheumatic cardiac child population must take into account the nature of all environmental factors which tend to influence the course of the disease and the behavior of the child.

Approaching the problem of the rheumatic cardiac child with a clear understanding of these important factors, certain advantages will accrue in time which otherwise could not be realized. The community, for instance, will be able to direct its efforts intelligently in directions that will lead to the greatest ultimate good. The medical profession in pursuing the study of the disease will be aided by several well coordinated agencies. And, finally, rheumatic cardiac children will be afforded uninterrupted observation and continuous care from which they should obviously gain lasting benefits.

## Plan of Investigation

THE review of the School Committee of the New York Heart Association made in 1934 was limited to an inquiry into the medical aspects of the care of cardiac children in the public school system. The administrative aspects of the problem were not considered. However, the report was not released because it seemed more profitable to acquaint certain members of the Board of Education and the Department of Health with the findings.

The Committee pursued this practice and in 1938 the Board of Education authorized the study of the present practices of caring for all physically handicapped children in the schools of Greater New York. The Committee for the Study of the Care and Education of Physically Handicapped Children was organized and the Committee to Study the Problems of Cardiac Children was designated as one of the sub-divisions.

The Academy of Medicine, the five County Medical Societies, the Department of Health and the Department of Hospitals cooperated through members of their organizations whom they designated to serve on the Committee. A number of prominent educators also agreed to give their services in this study.

By means of this joint committee it was hoped to make possible the achievement of a thorough study of the present practices in caring for and educating pupils with cardiac disorders, and a review of the problem in the light of the experiences of educators and public health agencies.

## PLAN OF INVESTIGATION

### *Magnitude of the Problem*

The factual data pertaining to the enrollment in the special classes are furnished only by the Board of Education. In 1939, the Cardiac School Committee of the New York Heart Association, after a year of study concluded that further investigation and more complete data were necessary before the problem could be adequately studied and a plan formulated. According to data supplied by the Board of Education in 1939, there were 2,251 children in 84 cardiac classes in elementary schools and convalescent homes, and 95 children on the waiting lists for these classes.

There is a wide divergence in the estimates from various sources as to the actual number of children with heart diseases in the public schools of the city. In 1931-1932, a study made by the Diagnostic Cardiac Clinic of New York City was based on the examinations of children applying for working certificates; during this year, 166,152 children applied for working certificates. Of this number, 1,432 children were referred to the cardiac clinic and 1,215 were completely studied. Of these, 528 (or 43.5%) were diagnosed as having organic heart disease. Assuming the same percentage of heart disease among the unexamined group, the authors of the study estimated that the number among the 1,432 referred children would be 622 or 0.57% of the entire group of 109,964. It was noted that this incidence is lower than the estimates of most surveys, although there were two factors in regard to the children in this study which might have been expected to raise the resulting incidence, namely: 1) the narrow age limits representing an adolescent group, and 2) the low economic status of the children. Although a higher estimate was given in other surveys, in a careful study made in Boston of 119,337 school children between the ages of 6 and 15 years, the incidence was found to be 0.52%; in another study in

## PLAN OF INVESTIGATION

New York City made by Dr. R. H. Halsey, the incidence was revealed as 0.5%.

A group of 318 school children of the East Side Schools in New York City who were classified as "cardiac" in the school record, were reexamined by the staff of the Beth Israel Hospital Cardiac Clinic in 1932. Only 36 in this group were found to have organic heart disease. Although this is a small series, the results are entirely in harmony with those of the other studies showing that the true incidence of heart disease among school children in New York City is between six and seven-tenths of one percent.

Hence, in consideration of these figures and the total number of school children the closest approximation which can be made, is that there are 7,000 children suffering with cardiac diseases in the schools of the city. Therefore, according to official records, less than 25% of the cardiac children are receiving special care in the schools under the present plan.

The special care being given at present, although it benefits only this small percentage of all the cardiac children in the public schools, is being maintained at an excessive cost; the exact figures are not available.

### *Proposed Plan*

Having determined that certain data were necessary for a thorough study of the present practices for educating pupils with cardiac diseases, the Committee formulated a plan.

It was proposed to determine the efficacy of the routine school health examinations by having a group of 5,000

## PLAN OF INVESTIGATION

children, selected at random, examined by competent cardiologists to determine the actual incidence of cardiac diseases and the accuracy of diagnoses in regard to the number of children reported as cardiac, and the number of cardiac children not diagnosed.

The examinations of this group would reveal: the degree (or severity) of cardiac diseases of these children; the educational supervision of all cardiac children in the public schools and an estimate of the personnel and facilities provided for the segregated classes. The development of standards for educational and medical care based on these data would result in the placement and in the supervision of cardiac children according to their health needs.

It was believed that much additional information would be collated on familial tendencies, economic status, and the responsibility of the family physician in relation to the incidence of cardiac diseases in school children. A record of the natural history of rheumatic heart disease in school children and a register of cardiac children during their enrollment in the public schools would result.

The real significance of the undertaking was not so much in the survey findings, important though they would be to the Committee, but in the impetus that the work would give to others to improve practices and services and advance the knowledge of how better to care for the school child handicapped by cardiac diseases.

The financial support required for this study was to be reduced considerably because of the voluntary services of the committee of physicians and educators and the availability of the facilities of the cardiac clinics affiliated with the Committee on Cardiac Clinics of the New York Heart Association. Nevertheless, this study as outlined

## PLAN OF INVESTIGATION

necessitated the employment of trained personnel for the medical examinations, educational evaluations and for the preparation of the report. It was estimated that \$22,000 would provide the data and the analyses required for a complete study. The Department of Education was unable to secure the sum necessary for the study outlined above.

### *Plan Adopted*

Due to the lack of funds, the Committee of necessity abandoned the fact-finding project pertaining to present practices and agreed to furnish the Board of Education with a medical plan which would provide care for all cardiac children in school, including those in the secondary schools as well as the elementary schools, those in hospitals, sanatoria, convalescent homes, and children confined to their own homes. This project was undertaken notwithstanding the fact that the Board of Education ultimately was unable to furnish either professional or clerical assistance for the development of such a proposal.

The Committee concluded that to formulate such a plan it would be necessary to visit all the segregated classes as well as a representative number of schools in which cardiac children attend the regular classes.

The Committee enlisted the services of 18 additional physicians who, with the members of the Committee, were prepared to visit all the cardiac classes in the Public School System in New York City. The schedule was so arranged that a physician was assigned the schools nearest his residence; however, this did not obviate the necessity of their traveling long distances to reach the schools.

## PLAN OF INVESTIGATION

Each physician recorded a description of his school visit on a uniform record. This appraisal necessitated a lengthy conference with the teacher as well as with the principal.

In scheduling these visits, the Committee followed the list furnished by the Board of Education. At the very outset, the physicians reported discrepancies regarding the location of the cardiac classes and of the schools which had been assigned from the Board of Education list. These inaccuracies were reported to the Director of the Division of Physically Handicapped Children and four new lists were eventually supplied. There was great variation noted in all of these lists. The following comparison will serve to show that the lists varied as to the actual number of classes in existence at the present time:

List	Number of Classes	Number of Schools
1st .....	84.....	50
2nd .....	93.....	55
3rd .....	not given.....	50
4th .....	94.....	55

It was found in carrying out this plan of investigation, that the information supplied was inadequate, incomplete, and in many instances incorrect.

## PLAN OF INVESTIGATION

### *Examples of Inadequate and Incorrect Information*

List	School	Borough	Errata
2nd	P.S. 42	Queens	Inadequate address given
2nd	P.S. 17	Manhattan	Incorrect address given
2nd	P.S. 202	Brooklyn	Incorrect address given
1st, 2nd	P.S. 198	Brooklyn	Cardiac classes discontinued*
1st, 2nd	P.S. 215	Brooklyn	Cardiac classes discontinued
1st, 2nd	P.S. 26	Brooklyn	Cardiac classes discontinued
1st, 2nd, 3rd	P.S. 66	Bronx	Cardiac classes discontinued
1st, 2nd, 4th	P.S. 9	Bronx	Cardiac classes discontinued
1st, 2nd	P.S. 39	Manhattan	Cardiac classes discontinued
2nd	P.S. 68	Manhattan	Cardiac classes discontinued
2nd, 4th	P.S. 152	Queens	Cardiac classes discontinued
1st	P.S. 11	Woodside	Cardiac classes discontinued
3rd, 4th	P.S. 118	Queens	Cardiac classes not listed**
3rd, 4th	P.S. 33	Manhattan	Cardiac classes not listed
3rd, 4th	P.S. 226	Brooklyn	Cardiac classes not listed
Not listed	P.S. 253	Not given	Cardiac classes not listed
1st	P.S. 32	Manhattan	Incorrect address given
2nd, 4th	P.S. 68	Manhattan	Incorrect address given
2nd	P.S. 215	Brooklyn	Inadequate address given***
Not listed	P.S. 18	Richmond	Cardiac classes not listed
2nd	P.S. 161	Brooklyn	Incorrect address given

\*In some instances the classes had been transferred to another school.

\*\*Reports were sent in by principals for cardiac classes in these schools.

\*\*\*Address given as: "P.S. 215, Avenue S, Brooklyn."

Frequent and persistent efforts to secure a correct list of the location of the cardiac classes were unsuccessful; each new list produced new inaccuracies. This fact limited the study to 68 classes for which complete data were available, estimated as 64% of the total number of classes.

## PLAN OF INVESTIGATION

### *School Principals*

The principals of 44 schools in the five boroughs submitted statistics on cardiac classes in their respective schools. A questionnaire was prepared by the Committee and distributed by the Board of Education for this record. This information has been tabulated and may be found in the following tables.

### *School Nurses*

The school nurses submitted information on cardiac children attending regular classes in nineteen schools. This information was submitted on a special form. The services of the school nurses were made available through the cooperation of Miss Amelia Grant, Director of the Bureau of Nursing of the Department of Health.

### *Cardiologists of Other Cities*

In order to correlate the cardiac school study in Greater New York with the practices in other sections of the United States, a communication was addressed to eminent cardiologists. This communication contained a brief summary of the study, a request for an outline of the medical requirements of the cardiac child in school, and an opinion on the following questions.

- (1) Do you believe that cardiac children should be segregated in school? If so, please state your reason.
- (2) Have you had special cardiac classes in the schools of your city?
- (3) If they have been discontinued, please state the reason.

## PLAN OF INVESTIGATION

(4) If such classes have not been organized, please state the reason.

Nineteen cardiologists throughout the country replied to these inquiries and their statements on the subject have been considered by the Committee in submitting the recommendations for this report.

### *Conferences*

The plan of investigation also included conferences of the School Committee and its Sub-Committee, with the Public Relations Committee of the New York Academy of Medicine, the Executive Committee and the Council of the New York Heart Association, with members of the Board of Education, the Department of Health, and the faculties of Teachers College, Columbia University, New York University, Fordham University, City College of New York and Brooklyn College.



## Summary of Findings and Observations by Physicians

### INTRODUCTION

AS outlined in the plan of investigation, the basic data contained in this study of cardiac school children are derived from reports submitted by principals of schools having special cardiac classes, by school nurses responsible for children in non-segregated classes, and by physicians who visited the schools.

#### *Location of Cardiac Classes in Public Schools*

Included in the survey are only those schools for which schedules with adequate information were submitted to the Committee. Consequently data were available on 68 special classes in 41 schools; it is known that this number does not represent the exact number of schools with segregated classes. As shown in Table I, the majority of these classes are in schools in the boroughs of Brooklyn and Bronx. Brooklyn has 13 schools with 24 segregated classes, and Bronx has 13 schools with 21 segregated classes. Manhattan has 9 schools with 15 segregated classes. The next largest number of segregated classes is in the borough of Queens, which has 6 classes distributed in 5 schools; the borough of Richmond has 2 classes in 1 school.

## OBSERVATION OF PHYSICIANS

TABLE I

### Distribution by Boroughs of Cardiac Classes Studied by the Committee

Borough	Schools	Classes
Manhattan .....	9*	15
Brooklyn .....	13	24
Bronx .....	13	21
Queens .....	5	6
Richmond .....	1	2
Total .....	41	68

\*In addition there was one school schedule (Manhattan No. 32) eliminated because of incomplete information.

Included in survey are only those schools for which schedules were available. 75 classes were selected for the study but data were obtained for only 68 of these classes.

### *Age and Sex of Cardiac Children*

The distribution of children in cardiac classes by age and sex for the entire 68 classes is indicated in Table II. This table also shows the distribution of cardiac children in these schools who were in regular classes at the time of the study. Six hundred-eighty-two or 45% of the segregated children are boys, 777 (52%) are girls; the sex was not stated in 48 instances (3%). Ages were given in all but one record, and ranged from 6 to 17 for the boys and 6 to 18 for the girls. About 80% of the group—1,211 children—are between 9 and 14 as shown in Table III, while the ages 12 and 13 have the greatest representation in both sexes.

TABLE II  
Distribution of Cardiac Children by Age and Sex

Age	Cardiac Classes			Waiting List			Not in Cardiac Classes or on Waiting List			Cardiac School Children			Total
	Male	Female	N.S.	Total	Male	Female	N.S.	Total	Male	Female	N.S.	Total	
5	5	6	...	11	1	2	...	...	4	2	6	12	12
6	6	...	...	11	1	2	...	3	22	15	11	23	62
7	28	20	2	50	2	3	...	5	34	27	13	74	129
8	28	43	1	72	3	2	3	8	34	23	17	84	164
9	68	55	1	124	5	3	...	8	38	35	20	93	225
10	85	94	2	181	5	9	1	15	40	28	18	86	282
11	82	112	4	198	7	8	3	18	52	24	10	66	282
12	122	129	7	258	4	7	3	14	32	13	19	64	29
13	108	136	13	257	3	5	2	10	28	21	20	69	336
14	93	91	9	193	7	3	3	13	21	14	11	46	127
15	30	58	6	94	2	2	...	4	11	4	14	29	64
16	26	24	2	52	1	3	1	6	6	3	...	9	35
17	7	8	...	15	...	...	...	...	2	...	2	9	17
18	...	1	...	1	1	1	...	...	...	...	...	1	1
N.S.*	...	...	...	...	...	...	...	...	...	...	...	...	61
Total	682	777	48	1507	45	51	19	113	527	246	159	732	2352

\*N.S.—Not stated.

## OBSERVATION OF PHYSICIANS

TABLE III  
Distribution by Age of Children  
in Cardiac Classes

Age	Number	Percent
6	11	0.7
7	50	3.3
8	72	4.8
9	124	8.2
10	181	12.1
11	198	13.1
12	258	17.1
13	257	17.1
14	193	12.8
15	94	6.2
16	52	3.4
17	15	1.0
18	1	0.1
Not Stated	1	0.1
Total	1507	100.0%

*Number and Grade Distribution of Cardiac Classes*

The class standing was noted in 1,498 records. Only 2 cardiac children are designated as academically ungraded while the vast majority receive formal instruction in the grades from 1A to 8B. The composite distribution of the children by grades as presented in Table IV reveals that there is a gradual, practically linear increase in the cardiac census from 1A up to 8B. It may be noted in Table V that 49 classes have 5 or more grades. Grade distribution of cardiac children not segregated in special classes is shown in Table VI. Table VII on page 59 shows the age-grade distribution of children enrolled in the special classes.

In the 41 schools visited there are 2,352 children considered to be cardiac and 1,507 (64%) are segregated in the 68 special classes. The remaining 845 are enrolled in regular classes, with 113 (5%) awaiting admission to special classes as indicated in Table II. A considerable mass of information was accumulated on all these

## OBSERVATION OF PHYSICIANS

TABLE IV  
Distribution by Grade of Children  
in Cardiac Classes

Grade	Number	Percent
1A	28	1.9
1B	23	1.5
2A	49	3.3
2B	50	3.3
3A	55	3.6
3B	76	5.0
4A	90	6.0
4B	96	6.4
5A	106	7.0
5B	111	7.4
6A	135	9.0
6B	143	9.5
7A	151	10.0
7B	109	7.2
8A	170	11.3
8B	104	6.9
Not Stated	11	0.7
Total	1507	100.0%

TABLE V  
Number of Half-Year Grades per Classroom  
in Cardiac Classes

Number of Grades Per Class	Manhattan	B'klyn	Bronx	Queens	Richmond	City Total
1	—	—	—	—	—	—
2	—	2	—	—	—	2
3	1	3	2	—	—	6
4	—	4	5	—	—	9
5	2	4	1	—	—	7
6	5	1	3	—	2	11
7	—	3	1	1	—	5
8	3	1	4	—	—	8
9	1	1	2	2	—	6
10	2	3	—	1	—	6
11	1	—	1	—	—	2
12	—	1	1	2	—	4
Not Stated	—	1	1	—	—	2
Total	15	24	21	6	2	68

TABLE VI

## Grade Distribution of Cardiac Children Not Segregated in Special Classes

Grade	Male	Children on Waiting List			Children Not on Waiting List or in Cardiac Classes			Total Not in Special Classes
		Male	Female	N.S.	Male	Female	N.S.	
1A	5	2	—	—	13	11	8	39
1B	1	—	1	—	15	15	7	39
2A	1	3	2	—	26	14	8	54
2B	1	3	—	—	26	13	8	51
3A	5	2	1	—	20	18	9	55
3B	4	4	—	—	24	12	6	50
4A	1	2	1	—	15	25	8	52
4B	1	5	—	—	18	14	10	48
5A	3	5	—	—	18	20	10	56
5B	5	1	3	—	16	13	8	46
6A	—	4	—	—	20	17	11	52
6B	1	3	3	—	14	11	6	38
7A	2	3	2	—	9	7	7	30
7B	1	3	2	—	21	4	11	42
8A	4	2	—	—	16	10	10	42
8B	2	2	1	—	13	14	6	38
9A	—	—	—	—	2	1	2	5
9B	—	—	—	—	6	—	2	8
Ungraded	3	5	2	—	—	—	25	75
Kindergarten	—	—	—	—	7	4	8	19
Not Stated	—	—	6	—	—	—	—	6
Total	40	49	24	325	248	159	845	
N.S.—Grade or Sex not stated.								

**TABLE VII**  
Age-Grade Distribution of Cardiac Children Segregated in Special Classes

\*N.S.—Grade, Sex or Age Not Stated





## OBSERVATION OF PHYSICIANS

children but since a prime reason for this study has been the role of the cardiac class in the care of the cardiac child, attention will be directed first to the facts pertinent to the special classes and the 1,507 children in them.

### *Etiological Factors*

The information of most importance to those charged with the responsibility for such individuals is concerned with the etiology of the heart disease, and the effect of the etiological factors on the myocardial reserve. Etiological diagnoses, obtained from the individual "pink" medical records in the school files, and made in most instances in conformity with the criteria established by the Heart Committee of the New York Tuberculosis and Health Association, are available on 1,326 children (88% of 1,507 — Table VIII). Dealing as the survey does with such a selected sample of the entire community, one would, *a priori*, expect to find a very high incidence of rheumatic heart disease, and almost complete exclusion of the degenerative or senescent types of change. Thus, under the rubric rheumatic fever are included 76.9% of the total group, or 1,159 children. Though some reports merely stated the etiological factor to be rheumatic fever, and others specified the inactive phase of the disease, both groups may be considered together. Strict adherence to the New York Heart Association criteria would demand a precise statement concerning the activity of the rheumatic process (insofar as this can be determined clinically) but it seems unlikely that a child with any manifestation of active rheumatic fever would knowingly be permitted to attend school. For the 68 classes, and allowing for the one individual whose age is not stated, the ages of the children with rheumatic heart disease range from 6 to 17. Eight hundred and fifty or about 74% of 1,159 fall within the years 10 through 14 inclusive, a distribution almost identical with the entire group of cardiac children.

TABLE VIII

## Distribution of Children in Cardiac Classes by Etiological Diagnosis\*

Etiology	Manhattan Num-Per- cent Number	Brooklyn Num-Per- cent Number	Bronx Num-Per- cent Number	Queens Num-Per- cent Number	Richmond Num-Per- cent Number	City Total Num-Per- cent Number
Rheumatic Fever .....	233 69	275 48	283 64	91 69	26 68	908 60.2
Rheumatic Fever inactive .....	55 16	126 22	42 10	21 16	7 18	251 16.7
Congenital .....	30 9	32 6	41 10	10 8	3 8	116 7.7
Bacterial Infection .....	3 1	3 1	1 0.2	....	....	7 0.5
Others .....	6 2	8 1	9 2	2 1	1 3	26 1.7
Unknown .....	3 1	4 1	5 1	6 5	....	18 1.2
Not Stated .....	8 2	121 21	49 11	2 1	1 3	181 12.0
Total .....	338 100%	569 100%	430 100%	132 100%	38 100%	1507 100%

\*Item "A" on schedule.

## OBSERVATION OF PHYSICIANS

Congenital developmental defects were responsible for heart disease 116 times (7.7%). The age range was from 3 to 17, with 70% (82) found from 9 to 13.

The remaining 51 individuals (3.4%) comprise a miscellaneous group in which the nature of the etiological agent is not clear or is unknown. Heart disease was ascribed to bacterial infection in 7 instances, or 0.5% of the total. Whether this refers to or includes such conditions as healed bacterial endocarditis or the cardiac sequelae of diphtheria, scarlet fever, etc., is not apparent. The term "other" is used 26 times (1.7%) and again the exact etiological agent is not given. Possibly, hypertensive heart disease secondary to chronic diffuse glomerulonephritis may be included here. Finally, the etiology is stated frankly to be unknown 18 times (1.2%). One might inquire if these are cases of the rheumatic type of heart disease in the absence of a history of well-defined manifestations of rheumatic fever, or if these are true examples of organic heart disease.

At the time the material for this study was collected the latest revision of the criteria for the diagnosis of heart disease had not yet appeared and, hence, the functional classification of the cardiac children retains the old nomenclature. The composite figures for the entire city as given in Table IX indicate that the great majority of the children have mild diminution of their cardiac reserve, i.e., they are classified as IIA. This accounts for 1,203 children, 79.8% of the total. The manner in which the designation IIA is arrived at for a given child, however, is open occasionally to some doubts. Such a

## OBSERVATION OF PHYSICIANS

classification may really have been the expression of a therapeutic approach to the child's heart disease, or it may have been used to insure a child's admission to a special cardiac class even though that child had no diminution of cardiac reserve. Only 48 children (3.2%) had no limitations because of their disease and 157 (10.4%) had moderate to marked diminution of cardiac reserve (class IIB). The three children whose functional classification is III present a problem, since such a designation indicates that the patient is bed-ridden. Likewise, the nine individuals included under the heading "other" pose a problem — are they possible and potential cardiacs (E and F) or are they children with other diseases? In 87 records (5.8%) the functional classification was not given. This is a significant number inasmuch as an accurate functional classification is an important part of the record of children in cardiac classes.

TABLE IX  
Distribution of Children in Cardiac Classes According to  
Functional Diagnosis

Functional Classification	Manhattan	Brooklyn	Bronx	Queens	Richmond	City Total
	Num-Per- cent	Num-Per- cent	Num-Per- cent	Num-Per- cent	Num-Per- cent	Num-Per- cent
I .....	9 2.7	15 2.6	19 4.4	3 2.3	2 5.3	48 3.2
IIA .....	285 84.3	431 75.8	342 79.5	112 84.8	33 86.8	1203 79.8
IIB .....	32 9.4	74 13.0	32 7.5	16 12.1	3 7.9	157 10.4
III .....	....	....	3 0.7	....	....	3 0.2
Others .....	2 0.6	4 0.7	2 0.5	1 0.8	....	9 0.6
Not Stated .....	10 3.0	45 7.9	32 7.4	....	....	87 5.8
Total .....	338 100%	569 100%	430 100%	132 100%	38 100%	1507 100%

## OBSERVATION OF PHYSICIANS

TABLE X  
Distribution of Children in Cardiac Classes  
by Functional Diagnosis and by Grade

Grade	Functional Classification							Total
	I	IIA	IIB	III	Others	N.S.		
1A	1	21	3	....	2	1		28
1B	1	19	2	....	....	1		23
2A	1	41	4	....	....	3		49
2B	....	39	7	....	....	4		50
3A	....	49	4	....	....	2		55
3B	2	61	6	....	2	5		76
4A	1	79	8	....	....	2		90
4B	....	78	10	1	1	6		96
5A	4	79	15	....	....	8		106
5B	4	85	13	....	....	9		111
6A	9	102	17	....	....	7		135
6B	8	116	17	....	2	....		143
7A	2	128	12	1	1	7		151
7B	5	75	14	1	1	13		109
8A	9	139	10	....	2	10		170
8B	1	83	13	....	....	7		104
Ungraded	....	1	1	....	....	....		2
Not Stated	....	8	1	....	....	....		9
Total	48	1203	157	3	11	85		1507

Analyzing the functional diagnosis by grades (Table X) it is interesting to note that 42 of the 48 children designated as Class I are found in the upper grades, and only 6 are found in the grades from 1A to 4B. There is a gradual increase in the number of children labelled IIA throughout the academic grades. The functional diagnoses and ages of the children are compiled in Table XI.

## OBSERVATION OF PHYSICIANS

TABLE XI

Distribution of Children in Cardiac Classes  
by Functional Diagnosis and Age

Age	Functional Classification						Total
	I	IIA	IIB	III	Others	N.S.	
6	....	8	....	....	....	3	11
7	1	40	7	....	....	2	50
8	2	55	8	....	1	6	72
9	3	109	8	....	....	4	124
10	2	159	11	1	1	7	181
11	9	147	30	....	....	12	198
12	11	202	27	1	2	15	258
13	6	204	27	1	3	16	257
14	5	154	23	....	1	10	193
15	5	76	5	....	1	7	94
16	3	37	8	....	....	4	52
17	1	10	3	....	....	1	15
18	....	1	....	....	....	....	1
Not Stated	....	1	....	....	....	....	1
Total	48	1203	157	3	9	87	1507

*Medical Care*

The care of cardiac school children is a joint medical and educational problem. It is interesting that 741 children (49%) are under the care of clinics or hospitals, many of which are affiliated with the New York Heart Association. The records of 682 children (45%) indicate private medical care while no information on medical supervision is available on the remaining 84 (6%). From these records, it is impossible to determine the amount and nature of the medical supervision, whether it is continuous or merely an examination. Presumably the children enrolled in clinics affiliated with the Heart Association were given periodic, and frequent, careful medical supervision.

## OBSERVATION OF PHYSICIANS

### *Special Cardiac Teachers*

The major role in the actual handling of cardiac children is played by the teacher for it is she who has daily contact with her charges. To perform such a job efficiently and intelligently demands some insight into the nature of the problem and some training in addition to that afforded by the routine courses offered to prospective teachers. The questions intended to elucidate this matter of special training and experience of the teachers revealed the most uniform aspect of the cardiac classes. Over 92% of the teachers (63 out of 68) had taken, while in training, some type of special work at Hunter College. Thirty-five of the 63 teachers specifically stated that they had taken one or more courses given by the Assistant Director in charge of Physically Handicapped, while the remaining 28 merely indicated some special courses. Direct inquiry into the nature of all these courses did not yield much information — apparently, all these courses consisted of very rudimentary anatomy and physiology and an occasional visit to a cardiac clinic. Only one teacher did not take some sort of special training for her work and in three records no mention was made of training. Not quite half of the instructors (30 out of 68) had three years or less experience in teaching cardiac classes; the remaining 38 individuals had served special classes for periods of four to twenty years. The matter of a substitute in case of the absence of a special teacher was not investigated routinely, though in two instances, it was learned definitely that no provision is made for substitutes.

TABLE XII  
Classroom Procedures Followed in Recording  
Temperature and Pulse

Procedures Reported	Manhattan	B'klyn	Bronx	Queens	Richmond	Total
Temperature and Pulse .....	5	.....	4	1	2	12
Temperature only .....	.....	.....	4	.....	.....	4
Pulse only .....	2	6	9	.....	.....	17
Taken irregularly or omitted .....	8	17	8	1	.....	34
No statement .....	.....	1	.....	.....	.....	1
Total .....	15	24	21	6	2	68

Temperature and/or Pulse Record Taken by	Manhattan	B'klyn	Bronx	Queens	Richmond	Total
Teacher .....	4	6	11	5	2	28
Nurse .....	3	.....	2	.....	.....	5
Total .....	7	6	13	5	2	33

## OBSERVATION OF PHYSICIANS

### Class Room Management

An important group of questions pertinent to the detection of colds, or other symptoms of active periods of disease and what care was given when such signs were detected, were designed to reveal the efficiency of the functioning of the special classes.

It has been indicated that rheumatic fever is the main etiological factor responsible for heart disease in the school child. The protean manifestations of rheumatism, the frequency of an insidious onset, and the common association with respiratory infections, render its early detection difficult even for the trained observer. Nevertheless, the admittedly inadequately trained teacher is confronted with the problem of searching out occult rheumatic fever. To accomplish this the temperature, the pulse rate or both were taken in 33 classes as shown in Table XII. Both the temperature and the pulse were recorded in 12 classes, the former alone in 4 classes, and the latter alone in 17 classes. Teachers made the observations in 28 classes and the school nurse, in 5 classes. The pulse was counted and/or the temperature was determined irregularly, e.g., only if indicated, or omitted, in 34 classes.

TABLE XIII  
Criteria for Detecting "Rheumatism"

Criteria	Manhattan	B'klyn	Bronx	Queens	Richmond	City Total
Subjective complaints of child*	6	17	12	5	—	40
Teacher's observation of child	4	5	5	—	—	14
Temperature rise	—	—	—	1	—	1
Pulse	—	—	1	—	—	1
None or not stated	5	2	3	—	2	12
Total	15	24	21	6	2	68

\*Joint or muscular pains, fatigue, etc.

## OBSERVATION OF PHYSICIANS

In Table XIII, the criteria for detecting rheumatism represent the teacher's observations of the children's complaints. The most commonly encountered complaints are joint or muscle pains, fatigue and malaise. The precise meaning of "teacher's observation" of child is not apparent, though 14 teachers used such "observation," to detect rheumatism. The temperature and the pulse rate were used as criteria only once each.

In the event that a case of rheumatism was detected, there was a great divergence of the policy followed, as indicated in Table XIV. No provision was made for such a child to be examined directly by a physician. Fourteen teachers notified the parents and suggested medical checkup, though the time and manner of such notification were not stated. Twelve teachers apparently referred the child to a medical agency. Sixteen teachers indicated that they would send such a child home, again suggesting medical care. The onus of responsibility was passed to the school nurse by 16 teachers, leaving her to notify the parents or arrange for medical follow-up. While some action would be taken in most instances, the lack of a consistent, well-directed policy is evident.

TABLE XIV  
Procedure Followed When "Rheumatism" is Detected

Procedure	Manhattan	B'klyn	Bronx	Queens	Richmond	Total
Parents notified and check up by physician or clinic suggested	.....	9	5	.....	.....	14
Referred to physician or clinic	5	.....	7	.....	.....	12
Sent home (medical care usually suggested)	1	5	7	3	.....	16
Nurse called (parents notified, etc.)	5	9	1	1	.....	16
Others*	1	1	.....	1	2	5
Not stated	3	.....	1	1	.....	5
Total	15	24	21	6	2	68

\*Principal notified, segregated, clinic visit suggested, etc.

## OBSERVATION OF PHYSICIANS

The criteria employed by 63 teachers for detection of colds in cardiac children (Table XV) were: cough, coryza, malaise, sore throat, temperature, "running nose," etc., either alone or in combination. These symptoms and signs are notoriously non-specific since they may be encountered in ordinary respiratory infections, as prodromata of the acute exanthemata or in allergic conditions of the upper respiratory tract, yet they serve their purpose if they raise the teacher's index of suspicion.

TABLE XV  
Criteria for Detecting Colds

Criteria	Man.	B'klyn	Bx.	Qu.	Rich.	Total
No statement .....	15	24	16	6	2	63
Sent to nurse if cold suspected .....	....	1	....	....	....	1
Observation of "signs" by teacher* .....	....	4	....	....	....	4
<b>Total</b> .....	<b>15</b>	<b>24</b>	<b>21</b>	<b>6</b>	<b>2</b>	<b>68</b>

\*Cough, coryza, malaise, sore throat, temperature, "running nose," etc., any one or a combination of symptoms.

The immediate procedure upon detection of a cold was found to be variable, as shown in Table XVI. "Isolation" of the child was done in 35 classes, though the exact nature and efficiency of this procedure is doubtful. Twenty-two teachers placed the child either in a far corner of the room or close to their own desks, and 11 more teachers, in addition to such a procedure, referred the problem to the principal or nurse. In 16 classes any child found to have a cold was sent home.

TABLE XVI

## Immediate Procedure Followed Upon Detection of "Cold"

Procedure	Manhattan	B'klyn	Queens	Bronx	Richmond	Total
Isolated in corner of room .....	4	10	6	2	....	22
Isolated and referred to Nurse or Principal .....	2	4	2	1	2	11
Temperature taken and referred to Principal, Nurse, or Physician .....	2	4	....	....	....	6
<b>73</b> Sent to Nurse .....	1	....	2	1	....	4
Sent to Nurse only occasionally .....	....	2	....	....	....	2
Isolated or sent home .....	....	2	....	....	....	2
Sent home .....	4	....	11	1	....	16
Parent notified and bus called .....	....	1	....	....	....	1
None .....	2	1	....	1	....	4
<b>Total</b> .....	15	24	21	6	2	68

### OBSERVATION OF PHYSICIANS

Upon a child's return to school, following an absence, it is proper that the cause for such absence be checked and an effort be made to determine whether there has been any change in the individual's medical diagnosis, including functional capacity. In 34 classes some attempt to check the diagnosis was made by the teacher, nurse, physician or clinic agency, in casual fashion. One third of the classes (23) made no effort to check the diagnosis.

(TABLE XVII)

TABLE XVII  
Confirmation of Medical Diagnosis Upon Child's  
Return to School.

Confirmation of Diagnosis	Man.	B'klyn	Bx.	Qu.	Rich.	Total
Diagnosis checked by teacher.....	1	....	....	....	2	3
Diagnosis checked by nurse.....	....	2	1	3	....	6
Diagnosis checked by clinic or physician	4	16	4	....	....	24
Diagnosis checked but method not stated	....	....	1	....	....	1
Checked only occasionally.....	....	2	2	....	....	4
Not checked .....	7	....	13	3	....	23
No statement .....	3	4	....	....	....	7
Total .....	15	24	21	6	2	68

Although theoretically a physician and a nurse are responsible for the medical supervision of each child in school, there is a lack of coordination and proper liaison between the medical and the educational divisions as revealed in Tables XVIII, XIX and XX. Regular attendance upon the cardiac class by the doctor or nurse was noted in 14 classes though the frequency of the visits was not stated. In 9 other classes, attendance ranged from once or twice a week up to once a term. The attendance was irregular in 45 classes but it was maintained that the physician was available for 21 of these whenever summoned (Table XVIII). The number of times the school physician was consulted during a term is indicated in Table XIX. Forty classes did not employ his services, the remainder consulted him infrequently. Similar, infrequent and irregular use was made of the school nurse during the term. Incidentally the number of times the physician or nurse was consulted represents the impressions of the teachers and is not derived from any actual record of visits.

TABLE XVIII

Frequency of Visits to Cardiac Classes by Physicians or Nurses

Frequency of Attendance	Manhattan	B'klyn	Bronx	Queens	Richmond	Total
Irregular attendance—available when summoned .....	6	6	6	3	...	21
Irregular attendance—available only at certain times.....	5	5	6	...	...	16
Irregular attendance—not stated if available when called .....	3	3	2	...	...	8
Attend classes regularly—frequency not stated .....	...	7	3	2	2	14
Attend classes once or twice per week .....	...	2	...	...	...	2
Attend classes "several times" per month .....	...	1	2	...	...	3
Attend classes once per month .....	1	...	...	...	...	1
Attend classes twice per term .....	...	...	1	1	...	2
Attend classes once per term .....	...	...	1	...	...	1
Total .....	15	24	21	6	2	68

TABLE XIX  
Number of Times Physician Was Consulted During Term

Number of Times Consulted During Term*	Manhattan	B'klyn	Bronx	Queens	Richmond	Total
1-5 times per term .....	2	3	8	...	...	18
"Once per week" .....	...	1	...	...	...	1
"Once per month" .....	...	1	...	...	...	1
"Twice per month" .....	...	...	...	2	...	2
Not stated .....	2	6	...	1	2	11
None .....	11	13	13	3	...	40
Total .....	15	24	21	6	2	68

\*Either during current term or last school term.

TABLE XX

## Number of Times School Nurse Was Consulted During Term

Number of Times Consulted During Term*	Manhattan	B'klyn	Bronx	Queens	Richmond	Total
1 - 5 times per term .....	3	5	8	2	.....	18
6 - 10 times per term .....	2	1	1	.....	.....	4
11 - 20 times per term .....	.....	2	.....	.....	.....	2
"Once per week" .....	.....	3	.....	.....	.....	3
"Twice per week" .....	.....	1	.....	.....	.....	1
"Four times per week" .....	.....	.....	2	2	.....	4
"Once per month" .....	.....	1	.....	.....	.....	1
"Rarely" .....	2	.....	.....	.....	.....	2
"Frequently" .....	.....	2	.....	.....	.....	2
Not stated .....	2	5	8	1	2	18
None during current term .....	6	4	2	1	.....	13
Total .....	15	24	21	6	2	68

\*Either during current term or last school term.

## OBSERVATION OF PHYSICIANS

### *Absentee Problem*

The indifferent handling of the absentee problem revealed one of the weaknesses of the cardiac classes. The bus driver was stated to be the intermediary between the home and the school in one-third of the classes. This consigns an important aspect of the problem to rather haphazard solution. The routine truant checkups, including cards sent to the home, handle a little over one-third of the absences. Home visits by teacher or nurse were made infrequently.

### *Transportation*

While transportation facilities are often available for cardiac children, the summary of information derived from physicians' visits to schools indicated that bus schedules frequently serve only to complicate classroom arrangements. These schedules were found to be irregular and dependent in a large measure on the decision of the bus company officials. Children in the same class arrive in shifts, some arriving as early as 7:45 A.M. Some children do not leave school until 4:45 P.M. Instances have been cited in which children were brought to school in over-crowded buses by long and devious routes. Bus service is not available at times other than those stated on the schedule.

## OBSERVATION OF PHYSICIANS

### *Rest*

The amount of rest for the whole school day was stated definitely for 53 classes. The minimum amount was 30 minutes; in one class it was more than 75 minutes daily. The majority of cases varied between  $\frac{3}{4}$  hour to  $1\frac{1}{4}$  hours. The apportionment of the rest time throughout the day was not given.

The rest facilities provided in 58 special classes as shown in Table XXI consisted of steamer or other rest chairs. Two classes reported that they had cots or beds. Information was lacking concerning the number of chairs or cots available for each class. Only one class reported that they used the regular school chairs for resting. Children had to remove desks and set up chairs for themselves in order to rest, inasmuch as personnel is not assigned for this duty. Supplementary information from the physicians' summary indicates that while children may be relieved of gymnasium work and be given extra rest periods, they may be asked by the teacher to do errands of a nature more strenuous than the exercise from which they have been excused.

### *Recreation and Play*

No uniformity exists in regard to the provisions made for recreation and play; the play periods vary from 15 to 60 minutes — 19 classes had a 30 minute allotment (Table XXII). The apportionment of this time throughout the day was not specified, although in 53 classes some provisions were made.

*Physicians Consulted by the Committee*

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*Chairman, New York Heart Association, New York, N. Y.  
Assistant Physician in First Medical Division, Mt. Sinai Hospital, New York, N. Y.*

ROBERT L. LEVY, M.D., F.A.C.P.

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Director, Department of Cardiology and Associate Attending Physician, Presbyterian Hospital, New York, N. Y.  
Consulting Cardiologist, French Hospital, New York, N. Y.  
Consulting Cardiologist, White Plains Hospital, White Plains, N. Y.  
Consulting Cardiologist, New York Infirmary for Women and Children, New York, N. Y.*

HOMER F. SWIFT, M.D.

*Member, Rockefeller Institute, New York, N. Y.  
Chairman, General Advisory Committee for the Cardiac Program, Department of Health, New York State*



TABLE XI  
Type of Facilities Provided for Rest in Classrooms

Type of Rest Facilities	Manhattan	B'klyn	Bronx	Queens	Richmond	Total
<i>Facilities available</i>						
Chair (steamer, rest, etc.)	13	23	15	4	2	57
Chairs and cots	.....	1	.....	.....	.....	1
Beds and blankets	1	.....	.....	.....	.....	1
Type not specified	.....	.....	5	1	.....	6
Rest at desk	.....	.....	.....	1	.....	1
No statement made	.....	1	.....	.....	.....	2
Total	15	25	20	6	2	68

As reported by surveyor. Information was not given as to the number of chairs, cots, etc., available for each classroom or school.

TABLE XII  
Time Devoted to Recreation and Play

Amount Per Day	Manhattan	B'klyn	Bronx	Queens	Richmond	Total
<i>.....</i>						
15 minutes	1	6	1	.....	.....	8
20 minutes	.....	1	2	.....	.....	5
30 minutes	6	6	5	2	.....	19
45 minutes	2	4	1	.....	.....	7
Unspecified	3	.....	11	1	.....	14
No recreation or play*	.....	1	1	1	.....	2
No statement made	3	7	.....	1	2	13
Total	15	24	21	6	2	68

\*As reported by surveyor.

## OBSERVATION OF PHYSICIANS

### *Summary*

It appears from the foregoing that there has been no coordination in the care of the cardiac child in school and the care of the child given by agencies outside of school. It is evident, furthermore, that there has been no attempt on the part of the schools to make such a correlation nor to use the available materials or facilities in any other manner.

These reports also emphasize the lack of uniformity of the care given to cardiac children in the public schools of the city; they further reveal that there is no consistency in the present practices for medical care for these children. The entire emphasis of the care of the cardiac child in the public schools is seen to be on the physical handicap of these heart diseases, as evidenced by special rest periods, special attention to activities, provisions for transportation and similar physical aids.

A lack of uniformity exists, even though in the Department of Education there is a special Bureau for the Physically Handicapped, which is supposed to initiate, and to carry into execution, a plan for the care of cardiac children in the public schools. It is evident then, that although this problem has been under consideration for 24 years, a uniform systematized policy of dealing with the problem of the care of the cardiac child in the public schools has never been developed.

## VII

### Summary of Observations by Educators

AT the time the study was started there were 92 cardiac classes in the public schools. A representative sample of these classes was selected for study based upon educational, economic, sociological and demographic reference statistics which were compiled for the Committee.

Fourteen members of the educational faculties of the colleges and universities within the city assisted the educational members of the committee and 52 classes were visited by this group.

These specialists made their observations independently of each other, and submitted individual reports. Many of the reports were supplemented by letters in which the findings and opinions of the observers were stated at greater length than in the report forms.

#### *Curriculum*

Teachers of the cardiac classes attempt to hold the curriculum in line as far as possible with that of the regular classes. In general, standards of achievement are asserted to be the same as for normal children of like age and intelligence.

Increased emphasis is applied to minimum essentials in the tool and content subjects with consequent reduction in the interpretive, appreciative and integrative phases of school studies. The probable explanation of the emphasis may be found in the combined operation of these factors: (a) the attempt to assist the children in meeting grade promotion standards, (b) the emphasis on the "tangibles" in such standards; (c) the necessity for individual rather than class instruction; and (d) the

## OBSERVATION OF EDUCATORS

reduced time available for instruction. It was maintained by many of the teachers that the individualized instruction is a significant factor in eliminating special pedagogical weaknesses.

As far as one can judge, the rooms do not generally evidence richly developed activity programs. Such special subjects as music, drawing, nature study, shopwork and cooking are reported as eliminated or reduced in emphasis. In some cases material from these subjects was brought in incidentally in conjunction with the industrial arts program or the health projects. The probability seems to be that, while touched upon, they do not receive the same emphasis as in the regular classes, for these subjects had to make way for the great emphasis placed on the fundamental subjects required for grade promotion.

Less strenuous play activities, modified physical training and a generally slower physical tempo were reported by some visitors to characterize the cardiac classes visited by them.

Increased emphasis on health consciousness, knowledge, and routines was found to be almost universally present, but the adequacy, appropriateness and effectiveness of teachers' efforts along these lines were frequently questioned in the reports.

In some schools an indefinite type of pre-vocational industrial arts program necessitated attendance of teachers at frequent conferences with the Inspector of Industrial and Placement Work. It appears that the implementation of what seemed to be a serious and well designed attempt was a function of the individual teacher and varied with the emphasis placed on manual activities in the particular school in which the class was located.

## OBSERVATION OF EDUCATORS

### *Daily Program*

The wide grade range within the separate cardiac classes necessitate: a daily program markedly different from that of regular classes. The predominant type of learning activity is individual seat work. Each student is given study assignments, usually in traditional textbooks and somewhat stereotyped exercise books, and is required to recite or submit written papers on his work.

In some classes older children correct the work of the younger ones. The assignments or individual "contracts" varied from tasks selected mechanically from a textbook to carefully prepared mimeographed "contracts," designed for use by all the children in a given grade. As noted in connection with the discussion of curricular modification, the circumstance of predominantly individual work seems to have caused emphasis on the memorization of such items of fact or skill as could readily be included in self-study exercise books.

The pupil's reaction to the individual assignments varied, but was on the whole favorable. The pupils, as a rule, worked assiduously and with self-reliance. A cooperative atmosphere generally prevailed. Some of the very young children seemed somewhat lost, and some of the older ones seemed bored. In this regard the hand of the particular teacher was apparent. Some of the teachers showed remarkable organizing ability; most of them seemed highly efficient, a few showed poor management.

Because of the largely individual nature of the work, all sorts of variation in the length of lesson, in the distribution of time and in the material stressed were reported. It was commonly asserted by the teachers that the individual setup resulted in an adaptation to the physical and educational status of the pupil. Such adjustments, however, seemed to be made within the frame-

## OBSERVATION OF EDUCATORS

work of a traditional subject-matter approach. Several observers commented on an apparent lack of functional adaptation to the special needs of the children in these classes.

Regular rest-periods are scheduled, usually ranging from 45 to 75 minutes daily, and pupils ordinarily bring lunches from home, eating them in the regular classrooms under rather unsatisfactory conditions.

Teachers seemed to have a very busy time of it, keeping the children profitably occupied. What seemed to make it possible for them to cope with this difficult task was the breathing spell while the children were occupied with their studies. Where the instructional program was ineffective in terms of present-day educational thought, the explanation seemed to lie in the misdirection of effort rather than a lack of it.

### *Utilization of Materials and Devices*

Instead of receiving textbooks through the usual channels, the cardiac classes are allowed a small fund from which the teachers may requisition special text materials. This does not always meet the needs, and has to be supplemented with "loans" from the regular school supply and the use of sample texts supplied by publishers. A considerable diversity of materials appears to be employed, including a number of up-to-date instructional books and a larger number of the old type of textbook.

A great variety of teacher-constructed material is used. Drill assignments of the busy-work type seems to predominate. Some little use of meager reference material is sometimes called for in the assignments. There seems

## OBSERVATION OF EDUCATORS

to be no organized provision for the interchange of materials among the teachers in these classes.

As regards maps, charts and other visual aids, the cardiac classes seem no better supplied than, if as well as, the regular classes. Opportunity to attend school movies, to make museum visits, to attend assemblies, etc., varied with the school; there was less participation in such activities than in regular classes in most of the schools visited.

### *Individual-Child Requirements*

The teachers in these classes have a fuller knowledge of the individual child, as is to be expected from the smaller size class, the longer residence with the same teacher, and the necessity for keeping physical records.

Because of the common interest of the teacher and parent in the health of the child there is greater parent-teacher contact than in the regular classes.

The teachers are required to maintain a case record of each child. This record includes information concerning the physical condition, social background and school achievement of the child. In a few instances the case histories were thorough. In the majority of cases they contain only readily available data. Some of the teachers report that they have visited the homes of the children, but more often knowledge of the home is obtained from the child or through the parents who visited the school.

Children in the special classes were reported to be receiving no more complete psychological test service than children in regular classes. The "standardized" diagnostic tests and the more recently developed diagnostic procedures in school subjects seem seldom to be

## OBSERVATION OF EDUCATORS

used. It was indicated by some of the teachers that they were able to ascertain the child's weakness informally and incidentally to the conduct of individual instruction. With respect to disciplinary and emotional problems the teachers seemed to have grasped something of the objective mental hygiene point of view.

### *Supervisory Services*

In general it may be said that the teachers in cardiac classes receive about the same degree of supervision as those in regular classes. To some extent, however, these special teachers enjoy somewhat greater freedom of action.

Briefly, the supervisory services include:

- (a) General supervision by the principal, assistant principal, or both. The teachers of special classes are expected to follow the usual regulations and attend faculty conferences. There is no general rule as to the extent to which the special class teacher is permitted to work out individual problems.
- (b) Special educational supervision by the Inspector of Industrial and Placement Work. This supervision takes the form of attendance at semi-monthly or monthly group conferences. The effect of this supervision is limited by the fact that only one hour a week is devoted to handwork.
- (c) Supervisory service, emanating from the office of the Assistant Director in Charge of the Division of Physically Handicapped Children, appears to be sporadic and concerned chiefly with administration details.

## OBSERVATION OF EDUCATORS

### *Age-Grade Progress of Children in Cardiac Classes*

A study was made of the age-grade progress of pupils in cardiac classes and a comparison was made with similar data compiled by the Bureau of Reference, Research and Statistics for the city at large. This showed that children in cardiac classes compared unfavorably with those in regular classes. The percentages of children underage, normal age, and overage for their grades is shown in Table XXIII.

TABLE XXIII

Percentage of Children in Cardiac Classes Who Are Underage, Normal Age, and Overage for Their Grades, Compared with Regular Class Pupils

Type Class	Per Cent of Children		
	Underage	Normal Age	Overage
Regular Classes .....	42	44	14
Cardiac Classes .....	5	37	58

These figures are based on cumulative percentages for all grades, from the first through the eighth. The trends observed at all levels show pronounced retardation, but since data were not available for comparing the age-grade progress of the children in the cardiac classes with their progress previous to their admission to these classes and with the progress of other children in the regular classes in the same schools, the conclusions which may be drawn from these data are limited.

### *Age Span and Grade Span of Pupils in Cardiac Classes*

A wide age span and grade span was noted and generally commented upon by the members of the committee and those assisting it. Data were therefore gathered from all cardiac classes in the city on age ranges and grade ranges, by means of questionnaires sent to the teachers of these

## OBSERVATION OF EDUCATORS

classes. The distribution of these classes by number of half grades taught in them is shown in Table XXIV.

TABLE XXIV

Distribution of Cardiac Classes by Range of  
Half Year Grades in Each

Grade Range	<i>Half Year Grades</i>														
Within Class	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15														
Number of Classes	1 1 12 6 11 10 13 13 7 10 4 1 3 0 1														
Total number of classes reporting	.....														
Median number of half grades taught in cardiac classes	.....														

The difference in the ages of children in the same classes ranged from 2 years to 10 years, the median difference being 5 years. The segregation of pupils in cardiac classes has created classes similar to those of the traditional one room country school. The distribution of these classes according to the ranges in ages of pupils enrolled in them is shown in Table XXV.

TABLE XXV

Distribution of Cardiac Classes by Maximum Age  
Differences of Pupils Enrolled in Each Class

Number of Years	<i>Maximum Difference in Ages of Pupils</i>														
Number of Years	10 9 8 7 6 5 4 3 2 1														
Number of Classes	3 5 4 15 9 18 21 13 1 0														
Total number of classes reporting	.....														
Median age range within class	.....														

*Replies to questionnaires sent to principals of schools in which there are special classes for cardiac children.*

The suggestions appearing most frequently in the questionnaires returned by principals of schools in which cardiac classes are located were the following.

1. That more adequate medical supervision be provided.
2. That more adequate information be furnished concerning the limitations to be placed upon the activities of the children in cardiac classes.

## OBSERVATION OF EDUCATORS

3. That the principals be given copies of instructions sent to teachers from the Division of Physically Handicapped Children.
4. That the responsibilities of the Division of Physically Handicapped Children and of the principals of the schools be more clearly defined.
5. That the allowance for teaching supplies be increased.
6. That the clerical work now required be simplified.
7. That there be provided more suitable cots and reclining chairs for rest.
8. That the present transportation service be improved.



## VIII

### Summary and Recommendations

#### SUMMARY

THE Board of Education requested the Committee to make a thorough study of its present practices in caring for and educating pupils with cardiac\* diseases and to consider the development of a plan of adequate supervision that would supplement the educational program for cardiac children in the public schools.

The Committee agreed that, to formulate such a program, it would be required:

- (1) To render an opinion as to the medical, nursing and social service requirements of the cardiac school child.
- (2) To offer diagnostic and prognostic criteria on the basis of which the cardiac child may receive an education suited to his needs.
- (3) To advise the Board of Education as to the type of medical nursing and teaching personnel necessary for the proper supervision of cardiac school children.
- (4) To aid in developing a continuity of care for the cardiac children through the coordination of the services of agencies in which the public schools would serve as an important link.
- (5) To have a complete register of cardiac school children.

The data necessary for the compilation of such a report could not be furnished by the Board of Education. The Committee, therefore, formulated a plan for securing such information, but execution of such an elaborate investigation could not be undertaken by practicing physicians. The Board of Education was unable to provide the funds with which to employ a staff to make this study.

\*The term cardiac includes all children with cardiac diseases and conditions leading to them; approximately 90% of these children have rheumatic heart disease and 10%, congenital. Since the majority of these children are rheumatic, particular emphasis is placed on their care.

## SUMMARY

The Chairman personally approached several foundations without success and most reluctantly abandoned the proposed investigations when his efforts failed to secure the necessary funds. At the request of the Board of Education the Committee agreed to undertake a limited study of the present practices in caring for the cardiac school children and to make recommendations for improving and extending their care.

The Committee assembled data on 68 cardiac classes. Supplementary information was furnished by 44 principals of schools having cardiac classes. Information on cardiac children in 19 schools without cardiac classes was furnished to the Committee by the school medical and nursing services. These reports were analyzed and tabulated for the Committee by the Statistical Department of the New York Tuberculosis and Health Association.

The criticisms embodied in this report agree in general with those noted in previous reports made under the direction of the Heart Committee of the New York Tuberculosis and Health Association. The opinions expressed are limited by the scope of the investigation.

As a result of the survey, the Committee believes that the problem of adequate care for school children with cardiac diseases is not fulfilled by the present cardiac classes. Furthermore, the administration of these classes appears grossly incompetent. Among the more significant failures to provide adequate coverage for this problem are the following:

- (1) At the present time, only a small percentage of the estimated number of children with cardiac diseases or conditions leading to them, i.e. rheumatic fever, chorea, etc., among the elementary school population is receiving special attention, and such facilities are entirely lacking in the secondary schools.

## SUMMARY

- (2) There are at least 7,000 cardiac and an undetermined number of potentially cardiac children in New York City. The Department of Education has been caring for a group of approximately 2,000 in special segregated classes. The remaining 5,000 have received no school medical supervision. While the Committee feels that cardiac classes should be a temporary institution, it would like to go on record as recommending that the cardiac child not be returned to the regular classes until an adequate medical program is provided for him. When such a program is developed, the children may then be sent to regular classes as rapidly as is consistent with their medical condition.
- (3) The cardiac classes have been under the jurisdiction of the Division of Physically Handicapped Children of the Board of Education and the medical service has been under the supervision of the Department of Health, although the Department of Health has not had any authority over the conduct of the classes.
- (4) The assignments of cardiac children to special classes are not based upon adequate diagnostic criteria. There has been a lack of suitable procedures in the management of the cardiac classes and the teachers have had inadequate training for the management of such classes. Physical arrangements for rest periods have been poor. The administrative difficulties involved in the admission and discharge of children to and from segregated classes have prevented caring for children on a short-term basis.
- (5) There has not been adequate medical and nursing supervision for cardiac children who have not been in special classes.

## SUMMARY

- (6) Procedures\* and criteria have been inadequate for the proper screening of school children with cardiac defects; for a complete diagnosis and medical care if necessary; and for suitable adjustments to their school schedules.
- (7) There has been a lack of interchange of information between the schools and private physicians, hospitals, clinics, convalescent homes and social agencies concerned with the care of cardiac children. This leads to incomplete and ineffective school management and improper handling of children.
- (8) There is a lack of attention to the actual educational needs of cardiac children with a view to preparing them for suitable vocations. The number of home-teachers is inadequate for the children with an acute infection who must remain at home in bed for a period of time. The procedures for carrying out this home teaching service are slow and complicated in the majority of instances.
- (9) The present study, as the one immediately preceding it in 1934, has not received the cooperation of the Assistant Director of the Division of Physically Handicapped Children. For example, it was impossible to secure accurate information even as to the number and location of the special classes in Public Schools.

\*Beginning in September, 1940, the Department of Health established a Cardiac Classification Service to which may be sent by the school physicians children suspected of having a cardiac defect. A record of the classification, treatment and school program changes recommended are entered on the child's school medical card and the record is marked for further follow-up. A copy of the record with an interpretation of its significance related to the child's school program is sent to the principal. This Service is too new to be evaluated fully and it is admittedly inadequate in amount. The temporary medical staff will shortly be replaced by appointees from the special civil service list for cardiologists. It at least represents a beginning wedge toward the establishment of a specialized cardiac diagnostic service for school children.

## SUMMARY

It is obvious from the foregoing that there are many gross deficiencies in the present program and that a considerable number of changes are now not only desirable but urgently needed. The nature and size of the problem imposed, i.e., the supervision of an estimated 7,000 children, indicates that a *single special agency* should be organized having authority in both the medical supervisory and educational aspects of these cardiac children's programs. Continued divided responsibility will result in perpetuating the present type of unsatisfactory supervision and education. To obtain efficiency, there should be definite and fixed single responsibility stemming from both the Department of Health and Board of Education. A rheumatic child's education and health supervision cannot be separated into fixed compartments, but must be considered as a unit, because the child is a unit. The lack of coordination between the Department of Health and the Board of Education and the bureaucratic control of the segregated school classes during the past twenty-four years has resulted in incompetent care of a relatively small percentage of the total number of cardiac children at a cost of several hundred thousands of dollars of the public funds, and has yielded no definite information on which future programs may be based.

The Committee has concluded that the information and data available are inadequate for it to judge whether segregation of cardiac children in the public school system could be beneficial to them, whether such segregation is necessary, or whether they can be adequately cared for in regular classes. The cardiac classes which have been set up by the Board of Education have failed to produce any evidence which this Committee feels justifies their existence. Indeed, as they are currently conducted it may well be that children are actually being harmed by assignment to these classes. However, the Committee does not favor the discontinuance of the cardiac classes until an adequate program shall have been developed which will insure proper medical supervision for these children.

## RECOMMENDATIONS

1. *The Committee recommends that the Board of Education and the Department of Health make a joint request for funds for the purpose of making a study of cardiac children similar to that recently completed by the Commission for the Study of Crippled Children. Such a study should consider the educational needs of cardiac children in relation to their physical and medical requirements.*

2. *That there be added to the Cardiac Classification Service of the Department of Health enough competent physicians specially trained in cardiac diseases to:*

- (a) *Provide classification services for all children suspected of having cardiac disease.*
- (b) *Review all reports from private physicians, from cardiac and other clinics, to determine whether the diagnoses are acceptable to the cardiac classification service.*
- (c) *Direct children to a proper source for a competent diagnosis if a satisfactory classification has not been obtained.*
- (d) *Make definite recommendations to the school authorities for all cardiac children with respect to their school activities based upon diagnoses acceptable to them for all children with rheumatic fever or cardiac disease.*

*The Committee recommends that the following procedures be substituted for those now prevailing:*

3. *That as rheumatic fever is frequently found in more than one member of the same family, the discovery of a case of rheumatic fever in a child be followed by the recommendation for the examination of siblings and parents.*

4. *That the school health service provide in each school where there are cardiac children, the service of a school nurse (or other qualified person) at the beginning of each school*

## RECOMMENDATIONS

day, and that all cardiac children previously selected by the Cardiac Classification Service be sent to the school medical room for inspection to determine whether they appear to be in good health and free from upper respiratory infection before they are admitted to classes. In the event that no school nurse is available for the daily morning inspection of these children, the Committee believes that a teacher can be instructed to perform this adequately. It should not take more than ten or fifteen minutes daily on the basis of an estimated case load of seven cardiac children per 1,000 pupils.

5. That there be recorded on a suitable form all symptoms of upper respiratory infection, or symptoms of possible rheumatic activity, where these are observed, and that these children be returned promptly to their homes and their parents be advised of the symptoms.

6. That all cardiac children returning to school following an illness be sent to the school medical room for inspection to determine their present state of health and the reasons for absence. Such children, if necessary, should be examined by the Cardiac Classification Service as soon as practicable if the reason for absence has a bearing upon the cardiac condition.

7. That cardiac children returning to school following acute illness other than rheumatic fever be assigned at the discretion of the school physician, for a short period of time, to a lightened school program of the type recommended for below-par children.\*

8. That each cardiac child be given a medical examination at least twice a year and that the report forms for these examinations provide for recording diagnoses, recommendations and plans for future supervision, and that these be made a part of the permanent medical records.

\*The Committee for the Study of the Care and Education of Physically Handicapped Children in the Public Schools of the City of New York, Report on Open Air Classes and the Care of Below-Par Children, Board of Education, City of New York, 1941.

## RECOMMENDATIONS

9. *That the Cardiac Classification Service provide regular supervision of all cardiac children.*
10. *That the Cardiac Classification Service recommend to the principal and teachers concerned what limitations, if any, are to be placed upon the physical activities of each cardiac child, such limitations of activity to be in accordance with those set forth in the standard classification of the New York Heart Association.*
11. *That cardiac children with therapeutic classification D and E be excluded from public schools. Such children should be at home under the care of a physician, in a convalescent home, or in a hospital.*
12. *That home-teachers be provided for those children whose cardiac condition makes it impossible for them to attend regular school but who are able to receive systematic instruction for an extended period, and that they be given an education suitable to their physical and mental capacities and their educational interests.*
13. *That an educational program be provided for cardiac children who are confined to convalescent homes and hospitals in accordance with the recommendations of the sub-committee studying the Education of Children in Hospitals and Convalescent Homes.\**
14. *That teachers with acute upper respiratory infections should not, during the first three days of their illness, come in contact with cardiac children.*

\*The Committee for the Study of the Care and Education of Physically Handicapped Children in the Public Schools of the City of New York, the Education of Children in Hospital and Convalescent Homes, Board of Education, City of New York, 1941.

## RECOMMENDATIONS

15. *The Committee recognizes the dangers inherent in any program of this kind becoming a fixed procedure. It therefore recommends that a Medical Advisory Committee be appointed to advise the Board of Education regarding the medical and educational requirements of the cardiac child in school in the light of new discoveries with respect to heart disease in children.*

16. *Finally, it is recommended that there be kept a complete register of all children with rheumatic fever, chorea, and rheumatic heart disease. If this is done, the size and nature of the problem will be more readily determined and the educational, prophylactic and therapeutic problems will be more competently envisaged.*







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